Direct Testimony of Bruce S. Auerbach, MD, FACEP

Q. Please state you name and business address.

A. My name is Bruce Auerbach, and my business address is Sturdy Memorial Hospital, 211 Park Street, Attleboro, MA 02703.

Q. Dr. Auerbach, in what capacities are you employed at Sturdy Memorial Hospital?

A. I am Vice President and Chief of Emergency and Ambulatory Services.

Q. What is your purpose in offering testimony in this proceeding?

A. To make certain that before any judgments are reached on the applications seeking authorization to construct LNG terminals at either the Weaver's Cove Fall River site or the KeySpan Providence site that the Commission recognizes that even the most minor incident of LNG release from either of those facilities or from tanker traffic while within the in-land waters of Massachusetts or Rhode Island, would present the region with an emergency that would be well beyond its capacity to handle. It is reasonable to assume that the resulting death toll would be very high, perhaps in the thousands, with an even a larger segment of the population subjected to irreversible injuries that would inflict near constant discomfort and impair the quality of life.

Q. Dr. Auerbach, before detailing the bases for your conclusions, please summarize your current professional responsibilities and your educational and professional background.

A. I have attached to my testimony, as Exhibit A, a complete curriculum vitae. As noted, I received my Medical training at Harbor-UCLA Medical Center in Torrance, California, with a medical doctorate received from Temple University Medical School and an undergraduate degree from Temple University.

Q. Are you Board certified in any areas?

A. I am Board certified in Emergency Medicine.

Q. How long have you served in your current position at Sturdy Memorial Hospital and what are your current responsibilities?

A. Since 1987, I have been responsible for oversight and management of all clinical outpatient services. I am also responsible for all aspects of the delivery of ambulatory patient care. In this role I have clinical and program responsibilities for all clinical ambulatory services the hospital provides. This includes the hospital Emergency Department, Occupational Health Services (hospital based and satellite programs), the outpatient oncology program, all outpatient specialty clinics, three multidisciplinary disease management programs, the physical therapy and cardiac/pulmonary rehabilitation programs and a school-based health center at the local 2000 student high school. In the aggregate, these areas treat in excess of 125,000 patients annually. In addition, I am responsible for the entire organization's emergency management plan, including plan development, training and education, drill scenario development and oversight as well as Incident Command System orientation for all physicians and employees.

Q. Dr. Auerbach, do you hold any other positions at Sturdy Memorial?

A. Yes. I also am Associate Medical Director and in that capacity I facilitate and support the hospital's part-time Medical Director with all medical staff and Board liaison functions and the activities of the Medical Staff Office. This includes all credentialing, risk management and quality improvement activities, medical education and the hospital's medical management program. Additionally, I have leadership responsibilities for the clinical oversight of the hospital's case management department as well as a key role in the Medical Management Committee that oversees the hospital's medical management and utilization functions.

Q. Dr. Auerbach, your description of responsibilities seems to indicate that most of your current functions are administrative in nature. Do you still practice medicine?

A. While it is true that many of my responsibilities are management and administrative in nature, I continue to be a practicing Emergency Medicine physician and provide such services to patients in the Emergency Department at Sturdy Memorial Hospital.

Q. Your curriculum vitae indicates that you have been involved with emergency preparedness activities, particularly in the post-9/11 environment. Could you please elaborate on those activities?

A. I was a founding member of the DMAT, called MA-1 and an active participant in this through its early years (mid to late 80's). I was obliged to relinquish my position on this entity during the 1990's as the ongoing weekend training requirements began to conflict with my very busy position at the hospital. Since 9/11, I have been an active participant in the Bristol County Homeland Security Task Force (an entity representing all agencies within the Bristol County region of southeastern Massachusetts, the Commonwealth of Massachusetts Anti-Terrorism Task Force (now called the Anti-Terrorism Advisory Council), the Emergency Preparedness Advisory Council formed by the Massachusetts Department of Public Health under the HRSA and CDC Cooperative Agreements (and I Chair the Southeastern Massachusetts Hospital Consortium under these agreements), as well as serving as the hospital/medical consequence representative on the Southeastern Massachusetts Homeland Security Regional Council formed by the Executive Office of Public Safety under the auspices of the Department of Homeland Security. Certainly within the context of the Bristol County and Southeastern Massachusetts Homeland Security Councils we have been actively looking at the risk assessment, hazard vulnerability and medical consequence and response related to the Weaver's Cove LNG siting.

Q. For whom are you appearing in this proceeding?

A. I am appearing on behalf of the City of Fall River and the Massachusetts Attorney General's Office in connection with the Weaver's Cove proposal to establish a liquefied natural gas (LNG) terminal in Fall River, including the impacts

stemming from the need to transit LNG supertankers up the 26 miles of inland coastal waterways in proximity to many densely populated communities.

Q. What is the basis of your belief that these communities could be impacted in the event of an accidental or deliberate breach of a LNG supertanker?

A. In my capacity as a member of the Bristol County Homeland Security Task Force, I have been extensively involved in emergency preparedness efforts that would be required in the event the Weaver's Cove terminal were approved by the Federal Energy Regulatory Commission. As part of that effort, I am fully aware about the safety and public health consequences that would flow from a release of LNG from a supertanker either as a result of an accident or deliberate attack on a LNG supertanker. Much of this understanding comes from the recently released Sandia National Laboratory Study that analyzed the consequences of a major release of LNG on water. At this point, while there is little human experience associated with a major release of LNG on water, there is no longer any dispute that a major release of LNG and the expected "pool fire" would produce thermal radiation impacts that would present unprecedented and extraordinary impacts on the emergency response and medical care resources across the entire region.

Q. Despite your conclusion that a LNG pool fire would produce "unprecedented and extraordinary impacts" on medical care facilities, can the region still handle the consequences of the event?

A. In my opinion, the answer is absolutely "no". Having reviewed the conclusions contained in the Final Environmental Impact Statement for Weaver's Cove, it is very clear to me that FERC is relying upon the premise that a pool fire event will likely never happen. Leaving aside for the moment whether FERC's expectation is legitimate, if such a pool fire ever did occur along many areas of the 26 mile nautical route up Rhode Island and Massachusetts coastal waterways, the consequences would be so far beyond the capability of existing medical resources that there is absolutely no way any conceived emergency response plan could ever capably respond to such an event. This conclusion is particularly relevant for when the LNG supertanker is in closest proximity to the City of Fall River, either at berth at the terminal or at any time the vessel is in the channel along the densely populated city environment.

Q. Please be more specific about why we cannot expect the medical care system to handle the consequences of an LNG fire-related emergency.

A. One only needs to examine the Sandia Study, which projects that a major LNG pool fire could generate thermal radiation of such intensity that it would cause 2nd degree burns to unexposed persons almost one mile away. Within a distance of between 1,500 and 2,000 feet of the fire, it can be expected that people would receive fatal burns due to the thermal radiation levels. Depending upon the location of the fire, this could produce a substantial amount of fatalities. In terms of emergency response, the handling of a large number of fatalities presents independent logistical difficulties, which I address later in my testimony. Beyond

the perimeter where the fire would produce immediate fatal burns, would be an expected high number of individuals who would receive second and third degree burns. When one examines the population densities along the proposed navigation route, in particular along areas where the federal channel is in close proximity to densely populated areas of Fall River, it is reasonable to expect that the number of injured sustaining second and third degree burns could easily be in the thousands. These numbers are simply mind-boggling to anyone experienced with and knowledgeable about the medical and emergency response community in the southeastern New England region.

Q. Please describe the current capacity of hospital beds among the available hospitals in southeastern New England that would be called upon to handle the injured in the event of a LNG catastrophe. In answering this question, please quantify the number of beds that can be assumed, on average, to be available should a region-wide emergency occur?

A. If considering the entire 13 hospital consortium in all of what is considered Southeastern Massachusetts, and including all available acute care hospitals in Rhode Island (approximately 10 that routinely offer the type of care that victims of this type of event would require), I would estimate that there are less than 4,500 beds. However, virtually every hospital in the region is running between 85% and 100% capacity, not to mention the hospitals that would be within the red and orange zones of the LNG fire event, and be, therefore, unusable. As part of our work in emergency preparedness, we have looked carefully at the issue of

surge capacity and the best we can stretch to is about 300-500 beds, across the entire region. In addition, Dr. Ken Williams, principal investigator for the Rhode Island Disaster Initiative, reported to me that one of the deliverables from this federally-funded initiative was to perform a vulnerability analysis of how the entire State of Rhode Island would handle the influx of only 500-1000 severely injured or ill persons and they determined that this number would completely incapacitate the entire system in Rhode Island, both hospital and EMS.

Clearly, the capacity to deal with the consequences of a LNG fire is grossly inadequate. Moreover, it must be emphasized that the victims of such an event will have suffered extensive burn injuries that must be treated at hospitals that have burn units. There are few hospitals in the region that have such units. There are really only two such hospitals that actually have ABA-certified burn beds. Moreover, there is little, if any capacity to handle acutely burned victims within the hospitals in Southeastern Massachusetts. The "potential" Boston area hospital beds are as follows (quotes are used around potential because the beds listed are not all specifically burn beds, but rather beds in surgical intensive care units that might be able to be converted to accommodate acute burn patients): MGH, 44, of which 4 are ABA certified Burn Beds; BIDMC, 33; B&W, 40, of which 10 are ABA certified Burn Beds; NEMC, 20; BMC, 28; Lahey, 12. RIH has 13; UMMC, 50. This means the total beds available to accommodate patients with second and third degree burns within a 60 mile radius are only 240, clearly an inadequate number for the predicted critically burned victims. And of course, this

in no way means that all these beds would be immediately available, as our institutions are constantly running their intensive care units at very close to capacity.

Q. Has southeastern New England ever experienced such a catastrophic fire event that presented such high numbers of fatalities or injuries?

A. Never, at least in my experience. Except for those who were deployed in response to terrorist attacks on the World Trade Center in New York City, most medical personnel, except possibly the military, (including myself) have little or no direct experience managing the consequences for events that involve the numbers of patients the magnitude of which we would have for an LNG disaster. While I and many of my colleagues have experience in planning for such events and a great understanding of the medical and science of the potentials, the actuality of such an event that would occur from a LNG fire would clearly parallel, or even exceed, the consequences experienced in New York City on September 11, 2001.

A good example of a major emergency response event occurred in February of 2003 when the Station Nightclub caught fire in West Warwick, Rhode Island. That fire resulted in 100 deaths and hundreds of burn victims. The Station Fire tragedy was one of the worst fires in the nation's history, yet it represents only a fraction of the consequences that would occur when compared to the potential consequences of a LNG fire.

Q. Based on the available emergency and in-patient care resources that are available within the region, what is your judgment about the regional ability to cope with an accident occasioned by the breach of LNG containment facilities? In answering that question, I ask that you to base your response on the judgments of Drs. Haven and West that a breach of containment could, at the very least, precipitate a pool fire causing anyone within a one-mile radius who does not have adequate protective clothing immediately at hand, to suffer second-degree burns in as little as thirty seconds.

A. If the fire occurred in the densely populated areas in proximity to either the LNG terminal or along the tanker navigation route, it is undisputed that the regional resources would be rapidly overwhelmed to an unimaginable degree. During the Station fire, which produced victims in the hundreds, every burn bed for about a 50 mile radius was consumed. EMS and other services responded from an equally far distance. Given the population density of the areas in consideration, a pool fire of this magnitude would result in thousands, not hundreds of victims and be totally beyond our capabilities.

Q. Dr. Auerbach, do you agree with the assessment that even the lapse of seconds in the provision of emergency services can mean the difference between life and death?

A. Clearly any delays in the provision of emergency services will have a devastating effect on an individual in proximity to a fire of the magnitude caused by a breach of an LNG supertanker or containment structure. Clothing and the components of

the human body are all too flammable. When you couple this with the relatively low percentages of total body area burned that result in death, high morbidity and long-term debilitation, seconds to minutes will assuredly mean the difference between life, life with disability and/or death (burns in the range of 20% of total body surface may carry mortality rates as high as 27-30% and 50% or greater, depending upon the study you read, have mortality rates from 33-100%.)

Q. Do you have anything that would help to describe the nature of the burns that would be sustained in a LNG fire?

A. Yes. In Exhibit B, I have provided a number of pictures that show the consequences of victims sustaining severe burns for those patients who survive. Additionally, I attach an article that appeared recently in the Wall Street Journal (Exhibit C) that describes the plight of burn victims in light of today's medical capability to treat victims. Victims of fires are very much consistent on case comparison basis.

Q. The Fire Chief of Town of Somerset indicates in his testimony that in the event of the unavailability, at the time of an incident, of access to the hospitals located in the City of Fall River, residents of Somerset would have to depend on facilities in the Providence area. Would you agree?

A. Yes, as well as possibly Brockton, Taunton and Attleboro, which will produce time-critical impacts to the injured who require immediate medical attention.

Q. What might the consequences be of the added travel time and, assuming that those in need could be transported to Providence area facilities, would those facilities have the capacity to administer the needed care in a timely fashion?

A. Given that the greatest likelihood of injury is burn-related, the added travel time could be very significant. Many of these individuals will have airway burns creating severe breathing difficulties. While our Paramedics are well-trained in airway management, burn patients with airway problems present an especially difficult situation. They frequently require a "surgical airway" (tracheotomy), which the Paramedics cannot perform. Their trachea are burned, making routine oxygenation difficult. As we all know, minutes really matter when it comes to not getting enough oxygen. On a more generic note, none of the hospitals to which these transports would occur specialize in burn care. So the short answer is they really do not have the capacity to administer the exact care the patients would require. They can provide some stabilization, but not the definitive care.

Q. Earlier in your testimony, you discussed the logistical impacts of dealing not only with burn victims, but also with fatalities. Could you please elaborate?

A. Yes. Another area that has received little focus or discussion is the fact that the thermal radiation impacts of the magnitude predicted by both the Sandia Study as well as Drs. Havens and West would leave a high number dead within the first zone demarcated by a heat flux level of 37.5 kilowatts per square meter. After the fire subsides sufficiently to allow safe access by emergency rescue personnel, the necessary protocols for handling dead bodies would also overwhelm responders

and available facilities. As an example, I would point to the recent study conducted by Richard Clarke which analyzed the consequences of a major LNG breach in the Providence River at the location of Keyspan LNG's planned terminal. Given the estimate that approximately 28,780 people live within one mile of the proposed terminal location, the Clarke Study estimated that 3,000 people would die immediately from the ensuing fire. This is an extraordinary number of dead, leaving aside the additional 10,000 people who would be injured or burned. Dealing with this number of dead is a major problem in and of itself. As the morgue and mortuary facilities in the region are limited. Depending upon the time of year, dealing with the dead can become a major problem. Obviously, in February, a site could be found to "cohort" the dead outdoors in the frigid New England climate. This would be quite a different matter if the event occurred in July. One need only examine what occurred in New York City the days following the terrorist attacks on the World Trade Center. All of the recovered bodies were decomposing, particularly given the warm seasonal trend at the time. Mortuaries had reached capacity, and there became an immediate need to generate mobile mortuaries. For example, at the lower ends of the West Side Highway, refrigerated trucks were lining the highway to accommodate the body bags.

Q. Dr. Auerbach, do you have any final thoughts or conclusions that you would like to offer to the Commission based upon your professional experience and your familiarity with the Providence-Fall River areas?

A. Yes, given my training and understanding concerning emergency response preparedness, I believe that allowing this facility to be constructed in the location selected by Weaver's Cove is an extremely bad idea – plain and simple. In this era of heightened concern about security, and the Department of Homeland Security's acknowledgement that we must do hazard vulnerability assessments and direct our attention to those areas where the hazards and vulnerabilities are the greatest, it is insane to create another point of vulnerability, particularly one that poses consequences of this magnitude. Locating an LNG terminal in some of the most densely populated areas in our country, at the end of a long water transit for the tankers is like playing Russian roulette and leaving 5 bullets in the gun. While I recognize that LNG is an excellent and clean source of energy, one that we need to continue to pursue, I would think that the federal government would do everything in its power to find an alternative location for a terminal. My conclusions are equally applicable to the Keyspan proposal in Providence.

Q. Dr. Auerbach, does this conclude your testimony?

A. Yes.

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Weaver's Cove Energy, L.L.C. and	)	Docket Nos. CP04-36-000, CP04-41-000,
	)	
Mill River Pipeline, L.L. C.	)	CP04-42-000, and CP04-43-000
	)	

DECLARATION OF WITNESS

I, Bruce S. Auerbach, declare under penalty of perjury that the statements contained in the Prepared Direct Testimony of Bruce S. Auerbach, MD, FACEP on behalf of the City of Fall River and the Attorney General of the Commonwealth of Massachusetts in this proceeding are true and correct to the best of my knowledge, information, and belief.

Executed on this 6th day of June, 2005.

Bruce Auerbach, MD, FACEP

Exhibit ___

BRUCE S. AUERBACH, MD, FACEP
8 Saddle Club Road
Lexington, MA 02420-2115
781-862-8051

CURRICULUM VITAE

NAME: Bruce Solomon Auerbach, MD, FACEP

HOME ADDRESS: 8 Saddle Club Road
Lexington, MA 02420-2115
Voice - 781-862-8051
Fax – 781-862-8943
Email – bauerbach@sturdymemorial.org

BIRTHPLACE: Philadelphia, Pennsylvania

BIRTHDATE: 17 November 1949

SPOUSE: Robin Stern Richman, MD, FACOG

CHILDREN: Three: Philip Jonathan Auerbach
Daria Claire Auerbach
Erik Richman Auerbach

EDUCATION:

Undergraduate: Temple University, Phila., PA
Bachelor of Arts in Biology 1967-1971

Graduate: University of Pennsylvania, Phila., PA
Non-degree student in Physiology 1972-1973

Medical: Université de Lille, Hôpital Régional, Lille, France
1973-1975

Temple University School of Medicine, Phila., PA
Doctor of Medicine 1975-1978

GRADUATE TRAINING:

Internship: Los Angeles County Harbor-UCLA Medical Center
Torrance, CA
Flexible 1978-1979

Residency: Los Angeles County Harbor-UCLA Medical Center
Torrance, CA

Exhibit ___

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CURRICULUM VITAE

GRADUATE TRAINING:	Emergency Medicine	1979-1981
(Cont.)	Chief Resident, Emergency Medicine	1981
LICENSURE:	State of California, G40479 (Inactive)	1979
	Commonwealth of Massachusetts, 47844	1981
SPECIALTY BOARDS:	Emergency Medicine, ABEM	1982, 1992

CURRENT POSITION:

Vice President and Chief of Emergency and Ambulatory Services
Sturdy Memorial Hospital, Attleboro, MA 1987-

Oversight and management of all clinical outpatient services. Responsible for all aspects of the delivery of ambulatory patient care. In this role I have clinical and program responsibilities for all clinical ambulatory services the hospital provides. This includes the hospital Emergency Department, Occupational Health Services (hospital based and satellite programs), the outpatient oncology program, all outpatient specialty clinics, three multidisciplinary disease management programs, the physical therapy and cardiac/pulmonary rehabilitation programs and a school-based health center at the local 2000 student high school. In the aggregate these areas treat in excess of 125,000 patients annually. In addition, I am responsible for the entire organization's emergency management plan, including plan development, training and education, drill scenario development and oversight as well as Incident Command System orientation for all physicians and employees.

Associate Medical Director
Sturdy Memorial Hospital, Attleboro, MA

Facilitate and support hospital's part-time Medical Director with all medical staff and Board liaison functions and the activities of the Medical Staff Office. This includes all credentialling, risk management and quality improvement activities, medical education and the hospital's medical management program. Additionally, I have leadership responsibilities for the clinical oversight of the hospital's case management department as well as a key role in the Medical Management Committee that oversees the hospital's medical management and utilization functions.

PAST POSITION:	Associate Director, Emergency Department	
	Newton-Wellesley Hospital	
	Newton, MA	1985-1987

Exhibit ___

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CURRICULUM VITAE

CURRENT APPOINTMENTS:

Instructor
Division of Public Health Practice
Harvard School of Public Health 2005-

Assistant Clinical Professor of Community Medicine
Tufts University School of Medicine 1985-

Instructor in Medicine, Division of Emergency Medicine
University of Massachusetts Medical School 1989-

Consultant, Annals of Emergency Medicine 1989-

Member, Board
Sturdy Memorial Associates, Inc.
A multispecialty physician group practice with 12 practice sites and 50 physicians. 1994-

Director
Board of ProMutual Group, the largest Medical Liability Insurer in Massachusetts 2002-

Member, Experience Review Panel
ProMutual Medical Professional Mutual Insurance Company
Massachusetts Medical Society Representative 1987-

Member, Emergency Medical Care Advisory Board
Department of Public Health, Commonwealth of Massachusetts 1989-

Vice Chair, Emergency Medical Care Advisory Board
Department of Public Health, Commonwealth of Massachusetts 1995-

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CURRICULUM VITAE

CURRENT APPOINTMENTS (cont):

Acting Chair, Medical Services Committee
Department of Public Health, Commonwealth of Massachusetts 1998-

Member, Ambulance Diversion Task Force
Department of Public Health, Commonwealth of Massachusetts 1999-

Member, Trauma System Development Steering Committee
Department of Public Health, Commonwealth of Massachusetts

Member, Southeastern Massachusetts Homeland Security Regional Council
Executive Office of Public Safety 2004-

Chair, Region 5 Hospital Consortium for Emergency Preparedness
Department of Public Health HRSA Cooperative Agreement 2002-

Member, Homeland Security Task Force
Bristol County Sheriff's Department 2003-

Member, Anti-Terrorism Advisory Council
US Attorney's Office 2002-

Editorial Board, PHYSICIAN'S NEWS DIGEST 1989-

Advisory Board, COVERAGE
ProMutual Medical Professional Mutual Insurance Company 1996-

Member, Helicopter Utilization Review Committee
Massachusetts Department of Public Health 1989-2002

Member, Medical Advisory Board
Commonwealth of Massachusetts Registry of Motor Vehicles 1992-

Exhibit ___

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CURRICULUM VITAE

Delegate, House
Massachusetts Medical Society 1996-

Trustee
Massachusetts Medical Society 1998-

President, Bristol North District Council
Massachusetts Medical Society 2002-

Exhibit ___

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CURRICULUM VITAE

HONORS/AWARDS:

Recipient of the VANGUARD AWARD for demonstrated leadership, vision and uncommon dedication to the Profession of Emergency Medicine
Awarded by Massachusetts College of Emergency Physicians 1988

Recipient of the INDOMITABLE SPIRIT AWARD for unswerving dedication and steadfastness of purpose to ensure ongoing quality Emergency Medicine
Awarded by Massachusetts College of Emergency Physicians 1993

Emergency Medicine PHYSICIAN OF THE YEAR Award presented in appreciation of outstanding service in the field of Emergency Medical Services
Awarded by Public Health Commissioner David Mulligan 1994

Massachusetts Department of Public Health Recognition Award, awarded by Public Health Commissioner Howard Koh, MD 2000

Recipient of the PINNACLE AWARD
Awarded by the Massachusetts College of Emergency Physicians 2004

PROFESSIONAL SOCIETY COMMITTEES:

Chair, Federal Government Affairs Committee
American College of Emergency Physicians
2002-

Chair, Managed Care Committee
Massachusetts Medical Society 2001-2003

Chair, Member Services Committee
Massachusetts Medical Society 2001-2004

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PROFESSIONAL SOCIETY COMMITTEES: (cont.)

Chair, Managed Care Report Survey Project Subcommittee
Massachusetts Medical Society 1995-

Member, Patient Safety Committee
American College of Emergency Physicians 2000-2002

Chair, Patient Safety Subcommittee of Federal Government Affairs Committee, American College of Emergency Physicians 2000-2002

Member, Clinical Issues Advisory Council
Massachusetts Hospital Association 1997-

Member, Committee on Strategic Planning
Massachusetts Medical Society 2002-

Member, Committee on Administration and Management
Massachusetts Medical Society 2004-

Member, Committee on Public Health
Massachusetts Medical Society 2001-

Chair, Committee on Physician Preparedness
Massachusetts Medical Society 2002-

PAST APPOINTMENTS/ ELECTED OFFICES:

President and Medical Director
Region V, Southeastern Massachusetts EMS Council 1988-2002

Examiner, American Board of Emergency Medicine 1986-1998

Councilor, Council of
American College of Emergency Physicians 1987-1993

Medical Director

Exhibit ___

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PAST APPOINTMENTS/ ELECTED OFFICES: (cont.)

Massachusetts BTLS Program 1986-1995

Member, EMS Year 2000 Task Force,
Commissioner of Public Health Appointment
Massachusetts Department of Public Health
1992-1997

Executive Committee, Metro Boston Disaster
Medical Assistance Team
National Disaster Medical System 1991-1997

President
Massachusetts Chapter ACEP 1988-1989

Director, Board of Directors
Massachusetts Chapter ACEP 1984-1991

Member, Executive Committee of the Board
Massachusetts Chapter ACEP 1985-1991

Advisor for Emergency Medicine
Tufts University School of Medicine 1983-1987

Clinical Instructor in Community Medicine
Tufts University School of Medicine 1982-1985

Director, Board of Southwest Suburban EMS
Council, a six hospital Emergency Medical Services
Consortium of the Metropolitan Boston Hospital
Council 1986-1987

OTHER:

Co-Editor, Annals of Emergency Medicine
Proceedings of the Clinical Advances Track of the
American College of Emergency Physicians, Winter
Symposium on Wound Care
December, 1988; 17:1264-1369

Certification Program in Health Care Negotiation,
Mediation and Conflict Resolution
Harvard School of Public Health 1995

Exhibit ___

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CURRICULUM VITAE

PROFESSIONAL SOCIETIES:

American College of Emergency Physicians
1980-

Fellow, American College of Emergency Physicians
1985-

Massachusetts College of Emergency Physicians
1981-

Diplomate, American Board of Emergency Medicine 1982-

Diplomate, American Board of Medical Examiners
1978-

University Association of Emergency Medicine
1983-1988

Massachusetts Medical Society 1983-

Charles River District Medical Society
1983-1987

Bristol North District Medical Society
1987-

Club of Mainz, World Association for Emergency and Disaster Medicine 1984-

Society of Teachers in Emergency Medicine
1985-1988

National Association of EMS Physicians
1987-

American College of Physician Executives
1988-

Society for Academic Emergency Medicine
1988-

Fig. 2 - The patient on admission and after amputation of the pinnae and repair with free skin grafts.

This is the burned child AFTER having undergone some reconstructive surgery.

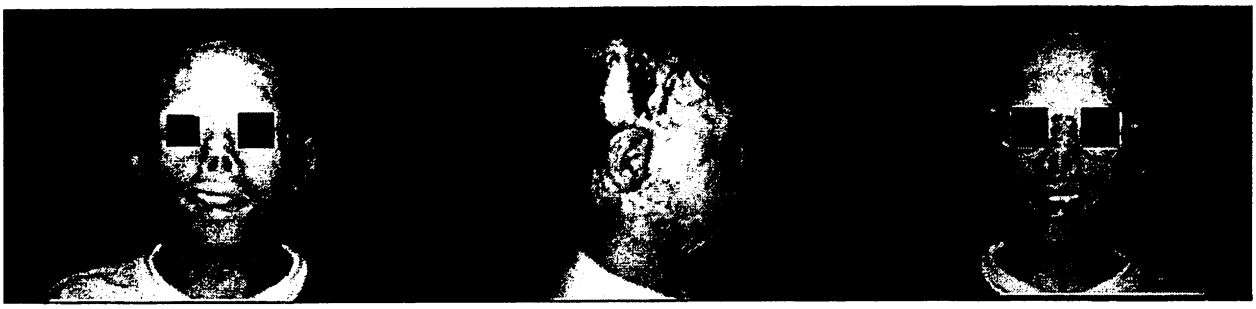

Fig. 3 - Same patient, at age of 9 years.

Exhibit ___

Fateful Decision

After Horrific Burn, A Wife's Choice: Is Treatment Wise?

Artificial Skin for Ted Fink Meant Pain and Risks; A 7-Month Induced Coma

'I Really Didn't Want to Look'

By Michael J. McCarthy

LANARK, Ill.—A fire in a farming accident burned Ted Fink on 93% of his body. While he lay in the hospital unconscious and near death, Rhoda Fink, his wife of 25 years, pondered whether she wanted doctors to save him.

Doctors told Mrs. Fink about a new kind of artificial skin that might help keep her husband alive. But there would be risks.

Ted Fink, before his accident

Infection could set in. Sometimes the artificial skin won't adhere all over the body, in which case Mr. Fink's chances for survival were slim. To endure the grueling pain of skin-grafting operations and other procedures, he would be placed in a drug-induced coma for several months, with the chance he wouldn't regain consciousness.

Even if he survived, he would never be the same, the doctor told Mrs. Fink. All she had seen of her husband at that point was his head. It had ballooned monstrously and his ears were nearly gone.

She decided they should try the artificial skin. After 14 months and more than 20 operations, Mr. Fink came home from the hospital. Almost everything about his physical appearance had changed. He was weak and disabled and virtually powerless over his life. Mrs. Fink was left to reflect on her decision.

"What kind of life have I subjected him to?" she wrote in her diary four years ago. "Hell on earth for the next 30 years? My life spent taking care of him? I had hoped and prayed for a better outcome."

Just a few years ago, patients with burns over more than 70% of their bodies were almost certain to die. Now, thanks to improved operating techniques and bioengineered skin, doctors have been able to cut that death rate to about 40%. Rarely in medical technology does a new product deliver such dramatic results. But for many burn victims, survival comes at a high cost of suffering. For the Finks, it would be years before they could try to judge whether saving a life was the right choice.

Rhoda Fink heard the explosion from the living room, where she sat reading the day's mail and sipping iced tea. She ran to the front door and spotted a "wall of fire," she recalls. She called 911 and asked them to send help to the Fink farm, in northwestern Illinois, about 20 miles east of the Mississippi River.

Rhoda Fink

It was a chilly, windless Saturday afternoon, Nov. 20, 1999. Mrs. Fink, a 46-year-old X-ray technician, had just returned from a day-long seminar on radiology. The Finks' corn and soybean farm had recently completed a successful harvest. Their son Peter, then 21, was at college in Ohio, and his brother Chris, then 19, had enrolled at a state university in Wisconsin to study agricultural engineering.

Ted Fink, then 45, was in his John Deere tractor moving a 1,000-gallon tank of liquid propane. Shuttling such tanks, which are used to fuel powerful ovens to dry grain for storage, was a routine job. On that day, though, the chain that held the tank onto the tractor snapped. The tank tumbled to the ground and began leaking. In a bizarre accident, the tractor apparently backfired, igniting the gas

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Exhibit

A Wife's Hard Choice After Her Husban

Continued From First Page

and causing it to explode.

Two neighboring farmers saw the flames and felt the impact a mile away. They raced over and snuffed the fire engulfing Mr. Fink by throwing dirt on him. He reignited. The farmers cut away his clothes, which were glowing like embers, and found a pair of blistering hot pliers on his chest.

Paramedics and firemen plucked Mr. Fink from a field of smoking cornstalks. Someone yelled, "He's alive," Mrs. Fink recalls. She watched from a distance. "I really didn't want to look," she says. Shivering and helpless, she saw the ambulance kick up dust as it raced away.

Grim Outlook

Hours later and 90 miles away, in the burn unit at the University of Wisconsin hospital in Madison, Mrs. Fink sat at a table facing Dr. Michael Schurr, chief of the burn unit.

Dr. Schurr explained that Mr. Fink was burned on nearly every inch of his body. Only his size 14 feet, protected by a new pair of steel-toe boots, had been completely spared. Until recently, burn specialists calculated mortality odds by adding a victim's age and the percentage of body severely burned. For Mr. Fink, that meant 45 plus 93 for a probable mortality of 138%.

But the doctor said he'd had some success with a new artificial skin called Integra, approved in 1996 by the Food and Drug Administration. The bioengineered skin, which has now been used on about 13,000 patients, is made from shark cartilage and cow tendons.

Integra solves a life-threatening problem for people with large burns. The epidermis—the top layer of the skin—regenerates. But the lower portion, called the dermis, doesn't. So victims who lose large parts of their dermis require implanted skin.

Someone burned as badly as Mr. Fink typically doesn't have enough healthy skin left to "harvest" thin slices to replace burned spots. Integra, made by Integra LifeSciences Holdings Corp. of Plainsboro, N.J., would allow Dr. Schurr to immediately cover the head-to-ankle open wound Mr. Fink had become. It would give Mr. Fink precious time to regenerate skin from his few unburned spots for grafts. Integra substitutes as the lower level of skin, but doctors still must graft the victim's own epidermis on top of it.

As the doctor spoke, Mrs. Fink pictured her husband, a brawny, fifth-generation farmer, who scaled 80-foot ladders up grain silos, welded beams, repaired tractors and ran their farm almost single-handedly. At night, he tracked overseas agriculture markets on his computer, trying to figure out where prices were headed.

The doctor couldn't tell her how much her husband would ever be able to do again. But she recalls thinking, "We'll beat the system. We'll be that one-in-a-million shot."

What would Mr. Fink want? Dr. Schurr asked. She wasn't sure. She and her husband had never discussed such a predicament. Dr. Schurr recalls telling Mrs. Fink, "This is going to be long and hard, but I can try to save him." He wanted to know that her resolve wouldn't waver, that she wouldn't opt to withhold treatment later if Mr. Fink took a bad turn. The process is so

Mike McCarthy

Ted Fink back at work in his John Deere tractor last fall.

arduous for the victim, and so emotionally draining for the family and the medical staff, that Dr. Schurr believes stopping part-way through the treatment isn't wise. "We either try this, and give it a hero's try—or not," he told her.

There was little time for a second opinion. Mrs. Fink could agree to pull her husband from life-support equipment then and there, or gamble that the synthetic skin would give them a chance to recapture, in some form, the life they'd known. She needed to decide quickly, so they could start surgery.

"Unless you tell me there's no hope," Mrs. Fink said, "we'll keep plugging on."

That night, she wrote on the stationery in her room at the Best Western Hotel: "I pray that if Ted survives he will be accepting of all the decisions made

For the next few months, Mrs. Fink stared at the barren branches on a honey locust tree outside room #5 at the burn unit, her husband's temporary new home. Doctors placed her husband in a drug-induced coma, so he could endure repeated, painful skin grafts and treatments. He was expected to remain in the coma for months, leaving her to live with the consequences of her decision alone.

Mrs. Fink found a basement apartment near the hospital for $100 a week. Sitting with him for hours grew harder since she couldn't see his face, which was wrapped in bandages. Her days were spent calling her sons to check on the farm, greeting visitors, and scribbling into a diary that had become her only constant companion.

She helped the nurses in the burn unit decorate the Christmas tree. One day she brought photos of the farm and taped them to her husband's bed. She clipped Mr. Fink's fingernails and toenails. She packed away the Christmas tree.

In early 2000, while he was still in the coma, doctors grew concerned that Mr. Fink's right thumb wasn't healing. With the loss of a thumb, a hand loses nearly half its function, doctors say. In her diary, Mrs. Fink wrote: "I just don't know how Ted will react if they can't save his hand/hands. I'll just keep praying for miracle #2."

Doctors amputated Mr. Fink's right thumb on Jan. 31, 2000. Mrs. Fink wrote "I dream about Ted a lot. I miss talking and interacting with him very much. I can't wait for the day they wake him up and he's coherent." She added: "His right hand looks sad without the thumb."

By May, the honey locust tree had greenish-yellow blossoms. Mr. Fink was slowly improving, but now his right index finger was in trouble. That summer doctors amputated it. Mrs. Fink wrote something in her diary that she would write again and again: "I still hope he doesn't hate me for saving him."

When Mr. Fink began to emerge from his seven-month coma in July 2000, he thought it was still 1999. One of his first sentences was just three words squawked through the breathing tube in his throat: "What...will...change?"

He was now wearing skin with U.S. Patent No. 4,947,840. His body was covered with sores as his grafts struggled to replicate the seamless cocoon skin naturally forms. His nose had no tip. Just a few wisps of fine white hair curled from his scalp. His son Peter recalls, "They didn't give him a mirror for a long time

Exhibit

d's Accident

He stayed in the hospital several more months, going to physical therapy to regain strength. His case amassed a file of paperwork more than 3 feet high, and medical bills of more than $4 million. Most of that was paid for through an Illinois state health-insurance plan, after his private insurance was exhausted.

Going Home

In January 2001, Mr. Fink returned home, to the farmhouse where he had grown up. His son Chris had canceled his schooling plans to take over the farm. On his first day back, Mr. Fink asked his son to help him onto his refurbished John Deere 610 C Turbo—the same tractor he'd been on when the accident happened. "It was the first thing he needed to do when he got back," Chris says. It took $14,000 to repair the tractor following the fire.

In the months that followed, Mr. Fink went to physical-rehabilitation sessions, where he tried to re-learn such things as walking and holding a fork. Mrs. Fink quit her job to care for her husband. She drove him back and forth to rehab. She dressed him. She fed him. She brushed his teeth.

Early one morning, her husband woke her with a horrible thud. He'd fallen out of bed. Mrs. Fink shouted for their son Chris to come hoist his dad back into bed. Mr. Fink had a fat lip and was coughing up blood. It was Valentine's Day.

That night, Mrs. Fink wrote in her diary, "I'm pretty much shot here emotionally. I've spent the day crying. Crying for Ted, me, what we've lost and probably won't ever get back...I feel so empty inside. I'm giving, giving, and not getting any love back." Then she added, "But it's not about me—it's about Ted."

Some days Mr. Fink resisted going to rehabilitation. He found it exhausting, he says, and not all that helpful. Mrs. Fink persisted. "I told Ted, 'Your New Year's resolution is to brush your own teeth—I'm giving up the job.' " He finally was able to bend his elbow just enough to do it himself.

Among the hardest tasks were the baths. Mrs. Fink helped her husband into their tiny bathroom. She undressed him and cut all the bandages off his torso, legs and behind. She helped him into the shower. As he stood there, covered with sores, she rinsed him with a hand-held shower head, gently scrubbed him with soap, and rinsed him again. Then she applied lotion to his skin.

After cleaning the small device inserted in his throat in case he needed to be hooked up to a breathing machine again, she wrapped him in fresh bandages. She chose bandages in green and yellow, the colors of her husband's John Deere equip-

Courtesy Fink Family

The Fink family in late 2003, (from left) Rhoda, Peter, Ted (sitting), Chris, Deanna, and granddaughter Samantha.

Going out in public has been challenging. "Some people act like they used to act," Mr. Fink says. Others stare or turn away. "Some people flat-ass ignore you. You find out who your friends are." He adds, "I know I don't look very good."

One day last fall, Mr. Fink's first grandchild, Samantha, waddled over to the kitchen chair where he was sitting and raised her arms. The blue-eyed strawberry-blonde was born to Mr. Fink's son Chris and his wife, Deanna, in September 2003.

"Now, honey," Mr. Fink said, "you know grandpa can't pick you up." Because his arm joints are so stiff, he can't clasp the little girl in his hands. Deanna lifted the child onto her grandfather's lap. He cooed at her.

After lunch another day, Mr. Fink suddenly set down his fork, which has an extra-wide handle to make it easier to hold, and scanned under the table. He thought he'd dropped a pain pill and was worried Samantha might find it. Because he wasn't agile enough to get down on the floor, he asked his wife to look.

Some days, the entrepreneurial side of Mr. Fink resurfaces. Like many small farmers, the Finks lease much of their roughly 2,500 acres. Convinced that neighbors didn't know he was alive and looking to expand his operation, Mr. Fink began advertising in the fall of 2003 on a local radio station.

"Ted Fink of Lanark is asking for your help," began the spot. "He's interested in buying or leasing good, tillable crop land in Lanark or the surrounding area." He ordered fat red pens printed with his phone number and the slogan, "Ted Fink Chris Fink—Stewards of the Land." So far the appeals haven't brought him any business.

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His legs are constantly bent at the knees, because of a condition in which inflamed joints fuse over with bone. It means he can't lie flat in bed, so he began sleeping in a recliner in the living room at night. The bows of his black-frame glasses rest on ear-lobe stumps, since most of his external ear structure is gone. While riding in a car, Mr. Fink says he keeps the windows up because "when you don't have ears, the wind just howls—it's fiercely loud."

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Exhibit ___

"You end up planning your life around his bath," she says.

The Finks' experience "is not unique, but not the usual," says John Burke, a pioneering burn surgeon and an emeritus professor of surgery at Harvard Medical School, who helped invent Integra. "A few of the survivors have considerable disability, but it turns out humans are enormously adaptable."

Of families faced with a dire situation like the Finks', Dr. Burke says: "I think people have every right to carefully weigh a decision to refuse treatment." If they accept treatment, he adds, then you have to try your hardest to save the victim.

Mr. Fink adapted slowly. The first few months after he left the hospital, he slept for hours on end. "When I came home, I had pretty much given up," he says. "I could barely walk." As he gained strength and dexterity, he eventually could shuffle with the use of a walker.

Lately, he has been able to return to some chores on the farm. He attended his older son's college graduation, and his younger son's wedding.

Mr. Fink can talk at length about soil chemistry or weather conditions, but he is a man of few words as topics turn less practical. On their first wedding anniversary after Mr. Fink got home from the hospital, he expressed his appreciation for all his wife had done by giving her a diamond ring. "I have a lot of blessings," he says.

'I'm Back'

One day, in the summer of 2003, he showed up at the desk of his local banker, dumped out the banker's pen box and deposited a fistful of Ted Fink pens. "I'm back," he said.

"I never expected he'd be in here again, physically and mentally capable, after what he'd been through," recalls the banker, Bart Ottens of Metrobank, which has continued making loans to the Fink farm.

Ted's son Chris has taken over most of the work of running the farm. Ted orders seed and equipment, contracts with buyers and handles the books. Chris does what his dad used to do: prepares the soil, plants the crops, repairs all the equipment and harvests. They usually hire a part-time helper for busy periods. At times, Ted can run the combine, which is used to harvest, by operating a joystick inside the cab with the two remaining fingers on his right hand.

One day last spring, Ted was on a tractor—the one he'd been burned on—clearing trees. Chris, on another tractor nearby, kept trying to get his father's attention. Finally, he yelled at him.

Ted recalls telling his son, "Sometimes I get engrossed in something because it helps me forget for a while how I am."

His skin these days is tough and crusty in spots. His coloration is a patchwork of bone-white, peach and blush-red.

She says she doesn't regret her decision. "Ted's glad to be here, even though he's got problems," she says. He doesn't need a breathing tube. He can feed himself. Now that he's more agile and able to wield the shower head, they've got his bath down to about an hour.

She thinks more improvement is possible, though, and would like her husband to reconsider future surgery.

"You could probably dress yourself," she told him one recent day.

"I still couldn't put my pants on," Mr. Fink retorted. Mrs. Fink dropped the subject. She says she has seen how painful skin-graft operations and recovery are. "I don't want to nag him," she says. "I'm not the one who has to go through it."

Did his wife make the right decision five years ago? "You can't condemn someone for making choices," he says. "You make them and you don't know if they're good or bad. It's done and you hope for the best. I can't begin to put myself in her shoes."

Mr. Fink says he enjoys playing with his granddaughter and doing what farming he can. Last December, he and his wife celebrated their 30th wedding anniversary. He's eager to return soon to an orchard he planted years ago, with apricot, cherry, apple and pear trees. "There's nothing nicer than going down there in the spring, when these trees bloom and give off their scent," he says.